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I-125 seed implants for prostate brachytherapy

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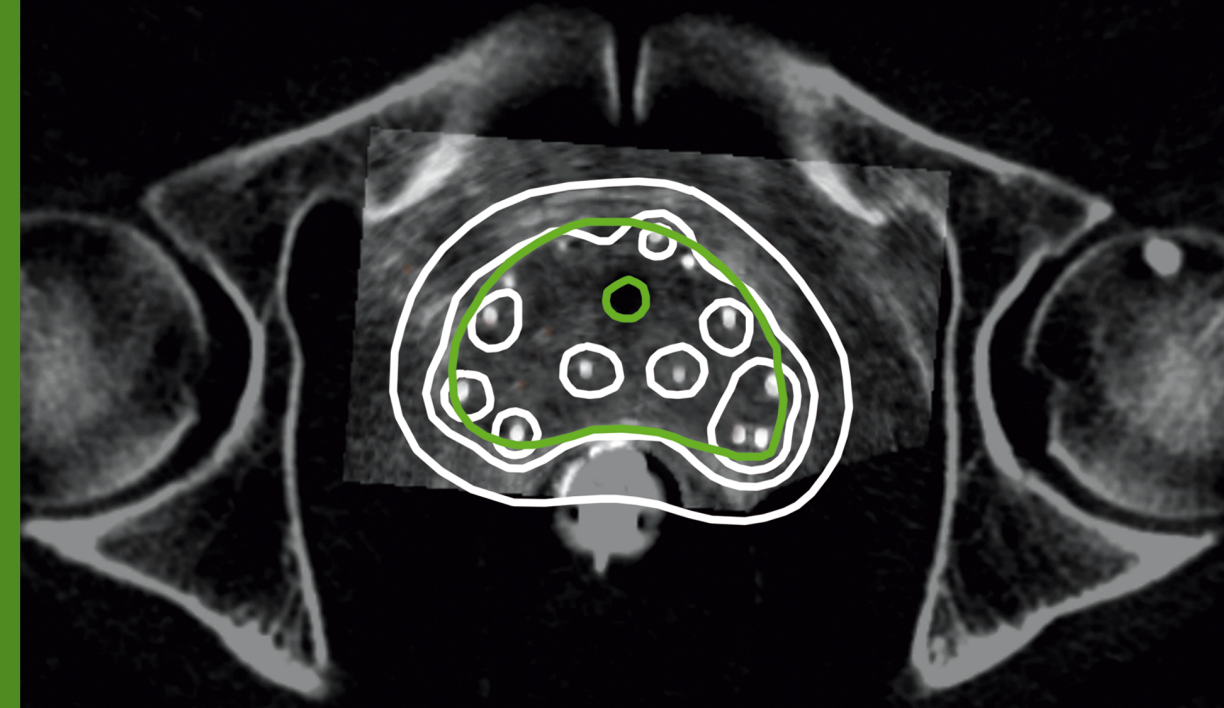
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I-125 seed implants for prostate brachytherapy

Physical characteristics and relations
with post-implant quality of life



Marcel Steggerda

Brachytherapy with I-125 seeds has proven to be an effective curative treatment for localised prostate cancer. Nevertheless, side effects after implantation of the seeds are common. The challenge is to reduce toxicity without compromising local control. To achieve this, detailed knowledge about the physical properties of these permanent seed implants is required. This knowledge will allow us to determine relations between dose distributions and clinical outcome, and to develop well-founded methods to improve the therapeutic ratio.

The purpose of the research described in this thesis was to make a step towards detailed characterisation and optimisation of brachytherapy of the prostate. The dynamic properties of both anatomy and seed implant were studied in detail, making use of a simultaneous multi-modality imaging technique. Relations between realised dose distributions and lower urinary tract symptoms (the most common side effect after brachytherapy of the prostate) were investigated and parameters predicting these symptoms were determined. Alternative implantation plans were studied that will possibly reduce post-implant toxic reactions.

I-125 seed implants for prostate brachytherapy

Marcel Steggerda

2010

Uitnodiging

Voor het bijwonen van
de openbare verdediging
van het proefschrift

I-125 seed implants for prostate brachytherapy

Physical characteristics
and relations with post-
implant quality of life

Door
Marcel Steggerda

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om 15:45 uur
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